

**REMARKS/ARGUMENTS**

Applicant has carefully considered the position of the Patent Examiner in the most recent office action and has amended the claims to more particularly point out the patentably novel features of the present invention.

Specifically, Applicant has amended independent method claim 22 and independent article claims 23 and 33 to more particularly point out that patentably novel features of the invention. In addition, dependent claims 24-32 have been cancelled because the invention is believed to be adequately protected by the three (3) remaining independent claims.

In the most recent office action, the Examiner rejected claims 22, 23, and 25-33 “under 35 U.S.C. 102(b) as anticipated by U.S. Patent 3,546,841 to Smith et al. or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Patent 3,546,841 to Smith et al. in view of G.B. 2, 315, 292.” (see paragraph 6)

In a separate paragraph in the office action (paragraph 7), the Examiner rejected claims 22-33 “under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 3,546,841 to Smith et al. in view of G.P. 2, 315, 292.” The arguments presented by the Examiner in support of this rejection are essentially the same as set forth by the Examiner in support of the above-referenced rejection of claims 22, 23, and 25-33, in paragraph 6 of the office action. However, in the paragraph 7 rejection, the Examiner made the additional observation that the Great Britain patent taught that it was known at the time of the invention to provide an extension portion 10 having recess 11 for a seal.

Declaration, paragraph 8). Although the use of the thermoplastic materials, and in particular the use of low weight thermoplastic foam cores, did provide some solidity to the plastic doors, such prior art doors still did not provide the most highly desired replacement door structure, and clearly did not provide a structure having the benefits achieved in the present invention, as enumerated in the Hammond Declaration, paragraph 6. For example, when hinge components are secured to doors of the present invention, retaining screws can be secured through the pultruded framework and into the high density core to provide a superior attachment as compared to prior art doors. (Hammond Declaration, paragraph 6).

Turning now to the claims, claim 22, as amended, describes a method of forming a door wholly composed of thermoset plastics. Specifically, claim 22 states this fact in the preamble, and then goes on to state that the method includes the steps of forming a body “of synthetic, structural-density, thermoset foam material having a density in excess of 200 kg/m<sup>3</sup> and connecting a length of pultruded, synthetic, thermoset material to one edge of the body.

Claim 22 also has been amended to more particularly describe the unique and unobvious structure of the connecting lengths of pultruded, synthetic thermoset material. Specifically, claim 22 specifies that the lengths include two side walls “having sections extending in opposed directions from a base.” Claim 22 further specifies that an outer face of each of the side walls “located on each side of the base” have spaced apart projections “providing recesses for receiving adhesive therein.” Claim 22 also states that the base of the pultruded structure is “overlying one edge of the body with sections of the two side walls extending in one direction from the base overlying side walls of the body.” Claim 22 further specifies the step of attaching

lengths of pultruded, synthetic thermoset material to the other edges of the body to provide a peripheral framework and then “applying an adhesive within the recesses provided between the spaced apart projections in the sections of the side walls located on each side of the base and then applying a skin of thermoset material overlying said adhesive to cover outer faces of said side wall including said adhesive on both sides of the base and curing the adhesive to unite the skin to the framework and cover said body.”

In summary, claim 22 specifies that the pultruded lengths include side walls extending in opposite directions from a base, and that the spaced apart recesses for receiving adhesive therein are located on each side of the base. Claim 22 further specifies the step of providing an adhesive in the recesses in the side walls on both sides of the base and then applying a skin of thermoset material overlying the adhesive on both sides of the base to cover outer faces of the side wall including the adhesive and then curing the adhesive to unite the skin to the framework and cover the body.

Claim 22 makes it clear that all the components are made from thermoset materials, and that the body, in particular, is of a high-density foam in excess of  $200 \text{ kg/m}^3$ . Moreover, claim 22 makes it clear that the pultruded lengths attached to the sides of the body are of a relatively complex structure, having side walls with sections extending in opposed directions from a base to provide a very desirable, rigid and strong connection between the pultruded lengths and the skins of thermoset material that overlie the adhesive provided in both sections of the side walls extending in opposed directions from the base.

Claim 23 is an independent claim directed to the door construction, and specifically describes a construction that is formed solely of thermoset materials. In particular, claim 23 specifies that the door includes a thermoset framework formed from lengths of pultruded, synthetic, thermoset material and that the framework defines a space that is at least partially occupied by a core “comprising a body of synthetic, structural-density thermoset foam material having a density in excess of  $200 \text{ kg/m}^3$ . The framework is rectangular and the door includes thermoset plastic skins extending across opposed faces of the body of synthetic, structural-density thermoset foam material and the framework. The specified framework has top and bottom lengths and opposed side lengths, with at least one of the side lengths having a base that contacts an edge of the foam material and two side arms extending in opposed directions from the base. Claim 23 further specifies that portions of the side arms extending in one direction from the base are disposed between the body of synthetic, structural-density thermoset foam material and the skins, and further that the skins extend in overlying relationship with portions of the side arms extending in the other of said directions from the base. Claim 23 further specifies that an outer face of the side arms extending in both directions from the base includes recesses for receiving and retaining said adhesive by which the skins, the body of thermoset foam material, and said side lengths are held together.

Claim 33 is directed to the unique pultruded length providing a framework for a door. The pultruded length includes a hollow body with a base portion to contact an edge of a foam body of a door. The pultruded length includes two side arms “which extend from said base portion on opposed sides thereof, said two side arms extending on one side of said base portion

being located between said foam body and facing door skins when said length forms part of a door and said two side arms extending on said opposed side of said base portion being located adjacent and facing said door skins in regions of said door skins extending beyond said foam body when said length is employed as part of a door.” Claim 33 goes on to state that each of the side arms has an outer face having spaced apart recesses on both sides of the base portion for receiving and retaining adhesive by which a door skin and the length are held together.

Applicant submits that claims 22, 23 and 33, particularly as amended herein, include limitations that are not remotely suggested in the Smith et al. ‘841 patent, or rendered obvious by the combination of the teachings in the Smith et al. ‘841 patent and the teachings in G.B. 2, 315, 292.

First, the ‘841 patent does not disclose the use of any pultruded sections (see line 36-38 of column 3); let alone pultruded lengths having the structure specified in claims 22, 23 and 33. In particular, there is absolutely no teaching or suggestion that pultruded lengths of any type should be employed in the door construction shown in the Smith *et al.* ‘841 patent. (Also see Hammond Declaration, paragraph 14).

It should be noted that pultrusion is a technique wherein fibers that are soaked in a plastic material are pulled through a die. This is in distinction to an extrusion operation wherein plastic material is forced through a die by pressure generated at the upstream end of the die. A person skilled in the art of extrusion technology does not necessarily know about pultrusion at all, and the skill sets required to operate pultrusion and extrusion equipment are distinctly different.

However, in addition to the fact that a person skilled in the art would not consider it obvious to employ pultruded end sections based on prior art teachings of employing an extruded end section, the fact remains that the Smith et al. '841 patent does not disclose any end section that remotely includes the structure specified in amended claims 22, 23 and 33.

In particular, the Smith et al. '841 patent discloses a door structure including a frame 20 made up of side pieces 29 and 30 and end pieces 32 and 33. First, there is absolutely no suggestion that the end pieces be formed of a thermoset material. Second, none of the end pieces include lengths having side walls with sections extending in opposed directions from a base that overlies the end of a foam core. Third, failing to disclose a structure having lengths with side walls having sections extending in opposed directions from a base, Smith et al. also fails to teach the provision of spaced apart projections in the side wall located on each side of the base to provide recesses for receiving an adhesive therein. Thus, in summary, the Smith et al. patent does not remotely teach any door structure including peripheral lengths having the structural features specified in amended claims 22, 23 and 33. Moreover, the differences do not end here.

The Smith et al. patent specifically states that the door includes plastic skins that "may be made of a thermoformable plastic material" (column 3, sentence beginning on line 7). In distinction to the teachings of Smith et al., Applicant's claimed method and articles employ a body formed of a thermoset foam material. Moreover, the thermoset foam material employed in applicant's invention is of a density in excess of  $200 \text{ kg/m}^3$ , a structural foam which is not disclosed or suggested in either the Smith et al. patent or any of the other prior art references. In this regard, the Examiner's attention is directed to the Hammond Declaration, paragraphs 9 and

10, stating that applicant is not aware of any suggested use of a high density thermoset foam material of the type employed in the present invention in door structures of any type, let alone in door structures that are wholly composed of thermoset materials. Even though the Smith *et al.* '841 patent does disclose the use of cellular plastic foams as a filler 24, there is no teaching that this filler should be of the high density construction specified in claims 22 and 23.

In summary, the method of forming a door specified in claim 22 and the door construction specified in claim 23 are formed completely from thermoset materials of the structure specified therein. In distinction to the method and articles specified in claims 22 and 23, the Smith *et al.* construction is not a door formed of all thermoset materials, does not employ pultruded lengths, and does not employ any end frame members having the structure specified in claims 22 and 33. Thus, it is clear that the Smith *et al.* '841 patent does not anticipate the method and structure specified in claims 22 and 23, respectively.

With respect to claim 33, Smith *et al.* clearly does not teach a pultruded length for a framework for a door having the structural features specified therein. In particular, there is absolutely no teaching in the Smith *et al.* '841 patent of any pultruded length (or any length whatsoever) having two side arms which extend from a base portion in opposed directions, with the side arm sections extending on opposed sides of the base each having spaced apart recesses for receiving and retaining adhesive by which a door skin and the length are held together.

The teachings in G.B. 2, 315, 292 do not cure the defects existing in the Smith *et al.* '841 patent. (Hammond Declaration, paragraphs 10 and 11).

Although the British '292 patent states that the frame material can be fabricated from a number of different materials, including glass reinforced plastics (line 3-4 of page 4); there is no mention that these lengths should be formed as pultruded lengths, as opposed to extruded lengths. As noted above, extrusion and pultrusion are not obvious variations of each other.

However, even putting aside the distinction between pultruded lengths and extruded lengths, the British '292 patent does not disclose lengths having the structural arrangement of elements specified in claims 22, 23 and 33. In particular, the lengths disclosed in the British '292 patent include a base section overlying ends of a central core and only include side walls extending in one direction from the base. Thus, there is absolutely no teaching of creating a structural redesigned length with side walls extending in opposed directions from the base, and projections extending along both section to provide adhesive receiving recesses in outer walls of the side walls on both sides of the base.

Forming the relatively complex structural arrangement of pultruded lengths, as is specified in claims 22, 23 and 33 is not remotely suggested by the British '292 patent.

Moreover, a person skilled in the art would not necessarily consider the reference to "glass reinforced plastics" as referring to a thermoset material. Specifically, the British '292 patent makes the following statement with respect to the frame:

"The frame may be made of wood or aluminum but is preferably made from plastics material such as PVC or glass reinforced plastics."

People skilled in the art understand that PVC is a thermoplastic material, and would consider glass reinforced plastics to be an equivalent type of thermoplastic material. (Hammond



In paragraph 8 of the office action, the Examiner rejected claims 22 and 33 “under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 6,138,435 to Kocher et al.”

In paragraph 9 of the office action, the Examiner made the observation that Applicant did not challenge the Examiner’s taking official notice in the previous office action that cores of synthetic, structural density, foam were well known in the composite panel and door arts. The Examiner went on to state that based on the lack of such a challenge, the cores set forth in the claims in this Application are considered to be admitted prior art.

Applicant never intended to accept the Examiner’s position that the prior art disclosed synthetic, structural density, foam material of the type employed in the method and articles of the present invention. To make this position abundantly clear, Applicant has attached as Exhibit A a Declaration of Ernest Kenneth Hammond, one of the inventors (hereinafter sometimes referred to as “Hammond Declaration”) setting forth facts supporting the position that a person skilled in the art would not consider the foams disclosed in the prior art to be “synthetic, structural-density thermoset foam material having a density in excess of 200 kg/m<sup>3</sup>,” as is specified in amended claims 22 and 23. As is noted in the Hammond Declaration, paragraphs 9 and 10, the foam materials that have been employed in plastic door constructions are of a considerably lower density, e.g., in the range of 100 kg/m<sup>3</sup>. The inventor states in his Declaration that, to his knowledge, prior to the present invention most manufacturers had concentrated their efforts on using thermoplastics materials because of their relative cheapness and their ease of handling and manufacture. Such thermoplastic material were considered to be able to withstand the conditions to which they were exposed for at least as long as a conventional wooden door. (Hammond

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Declaration, paragraph 11). There is no basis for construing the teachings in the British '292 patent to teach the formation of a door frame made of any thermoset material, let alone a pultruded length of thermoset material having the structural arrangement of elements specified in claims 22, 23 and 33.

Applicant also submits that the rejection of claims 22 and 33 "under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 6,138,435 to Kocher et al." is not applicable to the claims, particularly as amended herein. Specifically, the profile sections disclosed in Kocher are not pultruded lengths having side walls with sections extending in opposite directions from a base, and with each of the sections including spaced apart recesses for receiving an adhesive therein. Moreover, the U-shaped border profile disclosed in the '435 Kocher et al. patent is not well suited for use in door structures, which is the specified environment in both claims 22 and 33. Also, note the further deficiencies of the '435 patent, as specified in the Hammond Declaration, paragraph 15.

The Examiner's attention is specifically directed to the entire content of the Hammond Declaration, which clearly supports the patentability of the claims presented for consideration herein.

For at least the reasons set forth above, it is respectfully submitted that the above-identified application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are respectfully requested.

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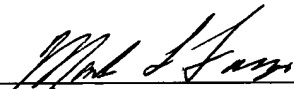
Should the Examiner believe that anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

CAESAR, RIVISE, BERNSTEIN,  
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September 9, 2004

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